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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/800,269	03/12/2004	Thomas W. Lanni	243301	9109

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Mark R. Kendrick
PILLSBURY WINTHROP LLP
Suite 2800
725 South Figueroa Street
Los Angeles, CA 90017

EXAMINER	
HAN, YOUNGHUIE JESSICA	
ART UNIT	PAPER NUMBER
2838	

DATE MAILED: 12/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/800,269	LANNI, THOMAS W.	
	Examiner	Art Unit	
	Y. J. Han	2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5 and 9-37* is/are pending in the application.

4a) Of the above claim(s) *9-13 and 21-37* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 14-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 August 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/12/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Species I in the reply filed on 4/25/2006 is acknowledged. The traversal is on the ground(s) that the search and examination can be made without undue burden by the Examiner. This is not found persuasive because no error to the restriction requirement has been pointed out.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 9-13 and 21-37 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. It should be noted that claims 9-13 are also withdrawn because they do not read on Species I. Claim 9 recites "a transformer" and "a regulator" which are not shown in the Species I.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 14, 16, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Mitsubishi et al (EP 1198058 A1).

Mitsubishi et al discloses a bi-directional boost circuit for power factor correction, comprising: a first diode (4a), a second diode (4b), a first inductor (3a), a second inductor (3b), a

first switch (5a), and a second switch (5b) to convert an AC input voltage, rectify the AC input voltage, and output an intermediate DC voltage; and a power factor control circuit to receive the AC input voltage, to receive the intermediate DC output voltage, to regulate the intermediate DC output voltage, and based on the AC input voltage and the intermediate DC output voltage, to control an inductor current waveform to form a substantially sinusoidal waveform that is in phase with the AC input voltage by driving the first switch and the second switch. See Fig. 5.

5. Claims 1, 14, 16, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Roux (6,411,535).

Roux discloses a bi-directional boost circuit for power factor correction, comprising: a first diode (42a), a second diode (42b), a first inductor (36a), a second inductor (36b), a first switch (38a), and a second switch (38b) to convert an AC input voltage, rectify the AC input voltage, and output an intermediate DC voltage; and a power factor control circuit to receive the AC input voltage, to receive the intermediate DC output voltage, to regulate the intermediate DC output voltage, and based on the AC input voltage and the intermediate DC output voltage, to control an inductor current waveform to form a substantially sinusoidal waveform that is in phase with the AC input voltage by driving the first switch and the second switch. See Fig. 2.

6. Claims 1, 14, 16, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Mitchell (4,412,277).

Mitchell discloses a bi-directional boost circuit for power factor correction, comprising: a first diode (13), a second diode (15), a first inductor (9), a second inductor (11), a first switch (17), and a second switch (19) to convert an AC input voltage, rectify the AC input voltage, and

output an intermediate DC voltage; and a power factor control circuit to receive the AC input voltage, to receive the intermediate DC output voltage, to regulate the intermediate DC output voltage, and based on the AC input voltage and the intermediate DC output voltage, to control an inductor current waveform to form a substantially sinusoidal waveform that is in phase with the AC input voltage by driving the first switch and the second switch. See Fig. 1.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 2 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsubishi et al in view of Brkovic et al (5,642,267).

Mitsubishi et al discloses the invention substantially as claimed but lacks a clipped inductor current waveform. Brkovic et al, however, teaches that the use of automatic current

shaping waveform generator which gives near unity power factor is well known in the art. Thus, it would have been obvious to one having ordinary skill in the art to employ the waveform generator of Brkovic et al in Mitsubishi et al to obtain the claimed invention for the purpose of achieving a desirable power factor in a bi-directional boost circuit.

10. Claims 3-5 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsubishi et al in view of Harris et al (6,420,935).

Mitsubishi et al discloses the invention substantially as claimed but lacks a haversign signal. Harris et al, however, teaches that the use of a haversign signal for power factor correction is well known in the art. See Figs. 26 and 27. Thus, it would have been obvious to one having ordinary skill in the art to employ the haversign signal in Mitsubishi et al, as taught by Harris et al, to obtain the claimed invention for the purpose of achieving a desirable power factor in a bi-directional boost circuit.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Y. J. Han whose telephone number is 571-272-2078. The examiner can normally be reached on Mon-Fri 6:30am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl Easthom can be reached on 571-272-1989. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

J. Han
Primary Examiner
Art Unit 2838